

METHOD FOR THE EFFICIENT READING OF A POPULATION OF
RADIO FREQUENCY IDENTIFICATION TAGS WITH UNIQUE
IDENTIFICATION NUMBERS OVER A NOISY AIR CHANNEL

ABSTRACT OF THE DISCLOSURE

A method for reading and tracking radio frequency identification (RFID) tags in the presence of a noisy air channel is provided. In accordance with the method, a binary tree data structure is used to characterize a plurality of RFID tags, each of which is associated with a unique identification (ID) number. During communication between a tag reader and one or more RFID tags, the tag reader traverses the binary tree, eliminating tags from communication until one tag with a unique ID number is isolated and verified. As the binary tree is traversed, counters associated with each node in the tree are incremented based on tag matches, such that, over time, counters associated with nodes in tag-populated branches will tend to have a high value and counters associated with nodes in unpopulated tree branches will tend to have low values. Where the read process is subject to noise and the tag reader is forced make a decision at a branching node, the tag reader makes a branch prediction based on the current value of the node counters associated with each of the possible alternative branches.

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